Pace Analytical Services, Inc.
Not NELAP Accredited
4860 Blazer Parkway
Dublin, OH 43017
(614)486-5421

Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

July 19, 2016

Ms. Robin Feller
JRM Environmental, Inc.
PO Box 926
Brownsburg, IN 461120926

RE: Project: Duke ED - 501
Pace Project No.: 50148966

Dear Ms. Feller:
Enclosed are the analytical results for sample(s) received by the laboratory on July 06, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Karen Fullmer

Karen Fullmer
karen.fullmer@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: Duke ED - 501
Pace Project No.: 50148966

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas/NELAP Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Duke ED - 501
Pace Project No.: 50148966

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50148966001	**Field Blank**	Water	07/06/16 10:40	07/06/16 14:20
50148966002	**501**	Water	07/06/16 10:45	07/06/16 14:20
50148966003	**501**	Water	07/06/16 10:45	07/06/16 14:20
50148966004	**501**	Water	07/06/16 10:45	07/06/16 14:20

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SAMPLE ANALYTE COUNT

Project: Duke ED - 501
Pace Project No.: 50148966

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50148966001	**Field Blank**	EPA 1631E	WJW	1
50148966002	**501**	EPA 1631E	WJW	1
50148966003	**501**	SM 2540C	MDG	1
50148966004	**501**	EPA 200.8	DMT	2

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ANALYTICAL RESULTS

Project: Duke ED - 501
Pace Project No.: 50148966

Sample: Field Blank **Lab ID: 50148966001** Collected: 07/06/16 10:40 Received: 07/06/16 14:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1631E Mercury, Low Level	Analytical Method: EPA 1631E		Preparation Method: EPA 1631E					
Mercury	ND	ng/L	0.50	1	07/13/16 16:00	07/14/16 09:32	7439-97-6	

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ANALYTICAL RESULTS

Project: Duke ED - 501
Pace Project No.: 50148966

Sample: 501 **Lab ID: 50148966002** Collected: 07/06/16 10:45 Received: 07/06/16 14:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1631E Mercury, Low Level	Analytical Method: EPA 1631E		Preparation Method: EPA 1631E					
Mercury	**3.53**	ng/L	0.50	1	07/13/16 16:00	07/14/16 10:41	7439-97-6	

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ANALYTICAL RESULTS

Project: Duke ED - 501
Pace Project No.: 50148966

Sample: 501 **Lab ID: 50148966003** Collected: 07/06/16 10:45 Received: 07/06/16 14:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	ND	mg/L	10.0	1		07/08/16 13:32		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Duke ED - 501
Pace Project No.: 50148966

Sample: 501 **Lab ID: 50148966004** Collected: 07/06/16 10:45 Received: 07/06/16 14:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8 Preparation Method: EPA 200.8							
Arsenic	ND	ug/L	1.0	1	07/12/16 13:00	07/14/16 16:39	7440-38-2	
Selenium	**1.1**	ug/L	1.0	1	07/12/16 13:00	07/14/16 16:39	7782-49-2	

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QUALITY CONTROL DATA

Project: Duke ED - 501
Pace Project No.: 50148966

QC Batch: 341890 Analysis Method: EPA 1631E
QC Batch Method: EPA 1631E Analysis Description: 1631E Mercury
Associated Lab Samples: 50148966001, 50148966002

METHOD BLANK: 1584063 Matrix: Water
Associated Lab Samples: 50148966001, 50148966002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ng/L	ND	0.50	07/14/16 09:05	

METHOD BLANK: 1584064 Matrix: Water
Associated Lab Samples: 50148966001, 50148966002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ng/L	ND	0.50	07/14/16 10:11	

METHOD BLANK: 1584065 Matrix: Water
Associated Lab Samples: 50148966001, 50148966002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ng/L	ND	0.50	07/14/16 11:14	

LABORATORY CONTROL SAMPLE: 1584066

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ng/L	5	5.31	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1584067 1584068

Parameter	Units	50148964002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ng/L	ND	2.5	2.5	2.57	2.61	93	95	71-125	2	24	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1584069 1584070

Parameter	Units	50148966002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ng/L	3.53	10	10	13.5	14.1	100	106	71-125	4	24	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Duke ED - 501
Pace Project No.: 50148966

QC Batch: 341307
QC Batch Method: EPA 200.8
Analysis Method: EPA 200.8
Analysis Description: 200.8 MET
Associated Lab Samples: 50148966004

METHOD BLANK: 1581632 Matrix: Water
Associated Lab Samples: 50148966004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	1.0	07/14/16 15:57	
Selenium	ug/L	ND	1.0	07/14/16 15:57	

LABORATORY CONTROL SAMPLE: 1581633

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	40	37.0	93	85-115	
Selenium	ug/L	40	38.8	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1581634 1581635

Parameter	Units	50149024001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	3.5	40	40	41.2	41.3	94	95	70-130	0	20	
Selenium	ug/L	ND	40	40	37.6	40.6	93	101	70-130	8	20	

MATRIX SPIKE SAMPLE: 1581636

Parameter	Units	50149278002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	2.1	40	37.8	89	70-130	
Selenium	ug/L	ND	40	36.5	91	70-130	

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QUALITY CONTROL DATA

Project: Duke ED - 501
Pace Project No.: 50148966

QC Batch: 340864
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 50148966003

METHOD BLANK: 1579815 Matrix: Water
Associated Lab Samples: 50148966003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	07/08/16 13:31	

LABORATORY CONTROL SAMPLE: 1579816

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	300	274	91	80-120	

SAMPLE DUPLICATE: 1579817

Parameter	Units	50148899001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	4590	4560	1	10	

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QUALIFIERS

Project: Duke ED - 501
Pace Project No.: 50148966

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Duke ED - 501
Pace Project No.: 50148966

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50148966001	**Field Blank**	EPA 1631E	341890	EPA 1631E	342124
50148966002	**501**	EPA 1631E	341890	EPA 1631E	342124
50148966004	**501**	EPA 200.8	341307	EPA 200.8	341529
50148966003	**501**	SM 2540C	340864		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

2032729

Section A
Required Client Information:

Company: JRM ENV
Address: Brownsburg
Email To:
Phone: Fax:
Requested Due Date/TAT:

Section B
Required Project Information:

Report To: JRM ENV
Copy To:
Purchase Order No.:
Project Name: DUKE ED-501
Project Number:

Section C
Invoice Information:

Attention: Robin Feller
Company Name: JRM
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER
Site Location STATE:

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: 1631 Hg	TDS	Arsenic, Selenium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Field Blank					7/6/16	10:40		1	X								X				001
2	501		G				10:45		1	X								X				002
3	501		G				10:45		1	X									X			003
4	501		G			↓	10:45		1			X							X			004
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

501489 UR

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	7/6/16	1420	Kathy Eck/Pace	7/6/16	1420

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
1.3	Y	N	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Robin Feller + Alyssa Hosler
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 7/6/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

ORIGINAL

Sample Condition Upon Receipt

Pace Analytical

Client Name: JRM Env. Project # 30148966

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Date/Time 5035A kits placed in freezer: _____

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other Ziplocks

Thermometer 1 2 3 4 5 6 A B C D E F

Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature (Initial/Corrected) 1.3°C / 1.3°C

Ice Visible in Sample Containers: ☐ yes ☒ no

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KDO 7-6-16

		Comments:
Are samples from West Virginia? Document any containers out of temp.	☐Yes ☒No	1.
Chain of Custody Present:	☑Yes ☐No ☐N/A	2.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	3.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	4.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Containers Intact:	☑Yes ☐No ☐N/A	8.
Sample Labels match COC: -Includes date/time/ID/Analysis	☑Yes ☐No ☐N/A	9.
All containers needing acid/base pres. have been checked? **exceptions: VOA, coliform, TOC, O&G** All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	☑Yes ☐No ☐N/A	10 (Circle) HNO3 H2SO4 NaOH NaOH/ZnAc
Residual Chlorine Check (SVOC 625 Pest/PCB 608)		11. Present Absent
Residual Chlorine Check (Total/Amenable/Free Cyanide)		12. Present Absent
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	13
Headspace Wisconsin Sulfide	☐Yes ☐No	14
Trip Blank Present:	☐Yes ☒No ☐N/A	15
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Project Manager Review		
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	15.
Sufficient Volume:	☑Yes ☐No ☐N/A	16.
Correct Containers Used:	☑Yes ☐No ☐N/A	17.

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: KDO **Date:** 7/6/16

Form F-IN-Q-290-rev.09, 13Oct2015

Sample Container Count

CLIENT: JRM Env.

COC PAGE 1 of 1
COC ID# 2032729

Project # 801489466

Sample Line Item	DG9H	AG1U	WGFU	AG0U	R	4 / 6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BP3C	BP1U	SP5T	AG2U	pH <2	pH >9	pH>12
1																		1			
2																		1			
3											1										
4										1										✓	
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Container Codes

DG9H	40mL HCL amber voa vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
AG1U	1liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
WGFU	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved **amber** vial
BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	SP5T	120mL Coliform Na Thiosulfate
BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved **clear** vial
AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag